CLAIMS

WHAT IS CLAIMED IS:

1.   An impedance matched low noise amplifier circuit, comprising:

a serially coupled first resistor and first transistor;

a serially coupled second resistor and second transistor;

a resistive sensor coupled to the first transistor and the second transistor;

wherein the first resistor and the second resistor are coupled; and

a transconductance feedback block coupled to the resistive sensor and to the serially coupled resistors and transistors.

2.   The circuit of claim 1 further comprising a first supply voltage coupled to the first transistor and to the second transistor.

3.   The circuit of claim 1 further comprising a second supply voltage coupled to the first resistor and to the second resistor.

4.   The circuit of claim 1, wherein a voltage across the resistive sensor represents data being read from a hard disk in a disk drive storage device.

5.   The circuit of claim 1, wherein the transistors are low noise transistors.

6.   The circuit of claim 1, wherein the transistors are MOS transistors.

7.   The circuit of claim 1, wherein the transistors are bipolar transistors.

8.   The circuit of claim 1, wherein the transistors perform as common-base amplifiers.

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9.   The circuit of claim 1, wherein the transistors perform as common-gate amplifiers.

10.   A method for increasing an input impedance of an amplifier, comprising:

determining an input impedance at each of a first transistor and a second transistor;

matching the input impedance to an impedance of an interconnect between inputs of the first transistor and the second transistor;

conducting data signals from a resistive sensor coupled to the first transistor and the second transistor to the inputs; and

decreasing current to the transistors, by a transconductance feedback block coupled to the resistive sensor and to the transistors, by an amount dependant on a voltage between the transistors.

11.   The method of claim 10 further comprising determining the input impedance by a bias current supplied to each of the transistors.

12.   The method of claim 10 further comprising producing a positive voltage or a negative voltage across the resistive sensor based on the data signals.

13.   The method of claim 12, wherein the voltage across the resistive sensor represents data being read from a hard disk in a disk drive storage device.

14.   The method of claim 12, wherein the voltage across the resistive sensor appears at the input of each of the transistors.

15.   The method of claim 12 further comprising, if the voltage across the resistive sensor changes, amplifying the voltage by the transistors.

16.   The method of claim 15 further comprising changing an output voltage at each of transistors based on the voltage change.

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17.   The method of claim 10 further comprising increasing the input impedance of the transistors based on the decreasing current.

18.   The method of claim 10 further comprising increasing the input impedance by an amount that is proportional to a voltage between input connections of the transconductance feedback block and the gain of the transconductance feedback block.

19.   The method of claim 10 further comprising achieving low-noise at the transistors by choosing a high bias current.

20.   The method of claim 10 further comprising increasing the input impedance with positive feedback from the transconductance feedback block.

21.   The method of claim 10 further comprising near independently controlling noise behavior and the input impedance at the transistors.

22.   The method of claim 10, wherein the transistors perform as common-base amplifiers.

23.   The method of claim 10, wherein the transistors perform as common-gate amplifiers.